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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/963,640	09/27/2001	Shogo Hachiya	05225.0211	9277

7590 05/08/2002  
Finnegan, Henderson, Farabow,  
Garrett & Dunner, L.L.P.  
1300 I Street, N.W.  
Washington, DC 20005-3315

EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/963,640

Applicant(s)

HACHIYA, SHOGO

Examiner

Jeremy Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 9, 10, 15, 16, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 6-260773 (hereafter JP '773).

JP '773 discloses, referring to figure 1, a circuit board for transmitting signals comprising: a dielectric layer (23a); a signal line (21) configured as a pattern on the dielectric layer to transmit the signals; a pad (24) formed on the dielectric layer, the pattern connected to and extending away from the pad; and a ground/power supply layer (22a) formed under the dielectric layer and having a hole (25) below the pad, the hole extending in a direction substantially parallel with a direction of the pattern extending away from the pad [claims 1, 9], wherein the pad has a width wider than a width of the pattern [claim 15], wherein the hole is rectangular and formed outside an imaginary line extending the pattern [claims 2, 10, 16], wherein the signals are high speed signals [claim 19].

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-8, 11-14, 17, 18, and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP '773 in view of US 6,184,478, granted to Imano et al. (hereafter US '478).

JP '773 discloses the claimed invention as described above except JP '773 does not specifically state: that the holes has a width wider than that of the pattern and narrower than that of the pad [claims 3, 11, 17]; that the hole comprises a pair of holes formed below the pad outside imaginary lines extending the pattern and a third rectangular hole formed between the imaginary lines [claims 4, 12, 18]; that the hole comprises a plurality of rectangular holes formed below the pad outside imaginary lines extending the pattern [claims 5, 13, 20], wherein each of the holes spreads in a width direction of the pad at a junction of the pad and the pattern [claims 6, 21], wherein each of the holes narrows in a width direction of the pad at an edge of the pad remote from a junction of the pattern and pad [claims 7, 22]; that the hole is rectangular and formed between imaginary lines extending from the pattern [claims 8, 14, 23]. However, JP '773 does teach that the purpose of the hole is to control the characteristic impedance of the device. To this end, US '478 teaches varying the size and placement of holes in a ground/power layer, beneath a signal layer to control the characteristic impedance of the signal layer to a desired value (see col. 4, lines 30-65). Therefore, it would have been obvious, to one having ordinary skill in the art, at the time of invention, to make any of the above modifications to the invention of JP '773 as taught by US '478. The motivation for doing so would have been to control the impedance of the device and

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reduce the possibility of signal degradation due to cross-talk. Moreover, it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following documents disclose ground/power planes having holes:

US 4,754,371	Nitta et al.,
US 5,519,176	Goodman et al.,
US 6,125,531	Farquhar et al..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7724 for regular communications and 703-305-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JCSN  
May 5, 2002



KAMAND CUNEO  
PRIMARY EXAMINER